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DATE: 30 May 1997

TO: Sella Burchette, U.S. EPA/ERTC Work Assignment Manager

THROUGH: Vinod Kansal, REAC Section Leader Vinod Kansal

FROM: Kenneth Robbins, REAC Task Leader Michael Morgan for KR.

SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT 1-262

Attached please find the following document prepared under this work assignment:

FINAL REPORT
WIPE SAMPLING
CORNELLI DUBILIER ELECTRONICS
SOUTH PLAINFIELD, NJ
MAY 1997

cc: Central File - WA 1-262

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FINAL REPORT
WIPE SAMPLING
CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, NJ
MAY 1997

U.S. EPA Work Assignment No.: 1-262
Weston Work Order No.: 03347-041-001-1262-01
U.S. EPA Contract No.: 68-C4-0022

Prepared by:

Roy F. Weston, Inc.

Michael Morganti for KR. 5/30/97
Kenneth Robbins Date
Task Leader

5/30/97
Edward F. Gilardi Date
REAC Program Manager

Prepared for:

U.S. EPA/ERTC

Sella Burchette
Work Assignment Manager

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1.0 INTRODUCTION

1.1 Objective of this Study

The objective of this project was for the Response Engineering and Analytical Contract (REAC) to perform wipe sampling at the Cornell Dubilier site to determining the extent of contamination from polychlorinated biphenyls (PCBs), lead (Pb), and cadmium (Cd) in small businesses located in South Plainfield, NJ.

1.2 Site Background

The site consists of ten buildings on property formerly owned by Cornell Dubilier Electronics. The buildings are used as rental space for several small businesses. Prior investigations have identified PCB and metals contamination in surrounding soils.

2.0 METHODOLOGY

On 21 March 1997, REAC personnel, in the presence of the United States Environmental Protection Agency Environmental Response Team Center (U.S. EPA/ERTC), conducted wipe sampling at locations designated by the U.S. EPA/ERTC Work Assignment Manager. Twenty-seven sampling locations were chosen in twelve buildings. Two buildings were not sampled because there were no occupants present. Two wipe samples were collected from each designated location; one sample was collected for the determination of PCBs (Aroclor 1254 and Aroclor 1260), and the other for Pb and Cd analysis.

The samples were collected by wiping a moistened 3" by 3" cotton gauze pad over an area of 100 centimeters squared (cm^2) which was marked off by using disposable 10 cm by 10 cm dedicated template. The gauze pad used to sample for PCBs was moistened with pesticide grade hexane. The gauze pad used to sample for metals was moistened with deionized water. Copies of field data sheets and chain of custodies can be referenced in Appendix A.

3.0 RESULTS

Analytical results for PCBs can be found in Table 1. Analytical results for Pb and Cd can be found in Table 2. A copy of the analytical report can be referenced in Appendix B.

4.0 DISCUSSION OF RESULTS

4.1 PCBs

A total of 27 wipe samples were collected for PCB analysis during the sampling event on 21 March 1997. Aroclor 1254 was identified above the method detection limit (MDL) of 0.8 micrograms per 100 centimeters squared ($\mu g/100cm^2$) in 22 of the samples. Aroclor 1254 was found ranging in concentration from 1.5 $\mu g/100cm^2$ (Sample #08567, BLDG. 13 TABLE) to 500 $\mu g/100cm^2$ (Sample #08607, BLDG. 5 AC). Aroclor 1260 was identified above the MDL in 12 samples. Weathered Aroclor 1260 was found ranging in concentration from 0.9 $\mu g/100cm^2$ (Sample #08597, BLDG. 10 COMP) to 180 $\mu g/100cm^2$ (Sample #08607, BLDG. 5 AC). A complete listing of the analytical results for PCBs can be found in Table 1.

4.2 Metals

A total of 27 wipe samples were also collected for Pb and Cd analysis during the sampling event on 21 March 1997. The samples were analyzed first by Inductively Coupled Argon Plasma (ICAP) for Pb and Cd. Initial results for Pb were either very low or below the MDL of 1.0 $\mu g/100cm^2$. The samples were

re-analyzed by Atomic Absorption (AA) to obtain a lower MDL of 0.05 μg/100cm². Pb was detected in all the samples at concentrations that ranged from 0.67 μg/100cm² (Sample #08590, BLDG. 12 TABLE) to 780 μg/100cm² (Sample #08566, BLDG. 13 FLOOR). Cd was detected in 26 samples at concentrations that ranged from 0.09 μg/100cm² (Sample #08614, BLDG. 3 COUNTER) to 34 μg/100cm² (Sample #08608, BLDG. 5 AC). A complete listing of the analytical results for metals can be found in Table 2.

Tables

Table 1
PCB Results
Final Report
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

Sample Number	Sample Location	Aroclor 1254		Aroclor 1260	
		Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)
BLK 03249701	----	U	0.8	U	0.8
08561	BLDG. 6 SHELF	5.0	0.8	U	0.8
08563	BLDG. 6 TABLE	0.4 J	0.8	U	0.8
08565	BLDG. 13 FLOOR	7.3	0.8	U	0.8
08567	BLDG. 13 TABLE	1.5	0.8	U	0.8
08569	BLDG. 13 COUNTER	U	0.8	U	0.8
08571	BLDG. 18 OVEN	3.2	0.8	U	0.8
08573	BLDG. 18 BENCH	89	0.8	82W	0.8
08575	BLDG. 18 FLOOR	7.5	0.8	4.9W	0.8
08577	BLDG. 14 LOW CONTACT	6.4	0.8	U	0.8
08579	BLDG. 14 FLOOR	1.9	0.8	U	0.8
08581	BLDG. 14 DESK	U	0.8	U	0.8
08585	BLDG. 11 FLOOR	9.2	0.8	3.9W	0.8
08587	BLDG. 12 FLOOR	13	0.8	12W	0.8
08589	BLDG. 12 TABLE	U	0.8	U	0.8
08591	BLDG. 5a FLOOR	70	0.8	17	0.8
08593	BLDG. 5a OFFICE	2.0	0.8	U	0.8
08595	BLDG. 5a WORK	U	0.8	U	0.8
08597	BLDG. 10 COMP	2.0	0.8	0.9W	0.8
08599	BLDG. 9a FLOOR	16 W	0.8	U	0.8

$\mu g/100cm^2$ denotes micrograms per 100 cubic centimeters
U denotes not detected above the method detection limit (MDL).
W denotes weathered.

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Table 1 (Cont'd)
PCB Results
Final Results
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

Sample Number	Sample Location	Aroclor 1254		Aroclor 1260	
		Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)
08601	BLDG. 5a FLOOR	210	0.8	24W	0.8
08603	BLDG. 5 AISLE	62	0.8	5.9W	0.8
08605	BLDG. 5 WORK	9.9	0.8	1.1W	0.8
08607	BLDG. 5 AC	500	0.8	180W	0.8
08609	BLDG. 5 TABLE	350	0.8	21W	0.8
08611	BLDG. 2 FLOOR	4.6	0.8	U	0.8
08613	BLDG. 3 COUNTER	U	0.8	U	0.8
08615	BLDG. 3 FLOOR	8.6	0.8	4.7W	0.8
08619	FIELD BLANK	U	0.8	U	0.8

$\mu g/100cm^2$ denotes micrograms per 100 cubic centimeters
U denotes not detected above the method detection limit (MDL).
W denotes weathered.

Table 2
Metals Results
Final Report
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

Sample Number	Sample Location	Cadmium		Lead		Method
		Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	
	MEDIA BLANK 1	U	0.08	0.12	0.05	AA
	MEDIA BLANK 2	U	0.08	0.14	0.05	AA
8562	BLDG. 6 SHELF	0.83	0.08	14	1.0	ICAP
8564	BLDG. 6 TABLE	U	0.08	0.91	0.05	AA
8566	BLDG. 13 FLOOR	23	0.38	780	5.0	ICAP
8568	BLDG. 13 TABLE	3.3	0.08	160	1.0	ICAP
8570	BLDG. 13 COUNTER	0.10	0.08	1.4	0.05	AA
8572	BLDG. 18 OVEN	0.41	0.08	25	5.0	ICAP
8574	BLDG. 18 BENCH	6.3	0.08	450	1.0	ICAP
8576	BLDG. 18 FLOOR	5.9	0.38	320	5.0	ICAP
8578	BLDG. 14 LOW CONTACT	7.9	0.38	320	5.0	ICAP
8580	BLDG. 14 FLOOR	2.6	0.38	100	5.0	ICAP
8582	BLDG. 14 DESK	0.32	0.08	7.0	1.0	ICAP
8586	BLDG. 11 FLOOR	1.1	0.08	25	1.0	ICAP
8588	BLDG. 12 FLOOR	6.1	0.08	250	1.0	ICAP
8590	BLDG. 12 TABLE	0.14	0.08	0.67	0.05	AA
8592	BLDG. 5a FLOOR	4.2	0.08	75	1.0	ICAP
8594	BLDG. 5a OFFICE	0.16	0.08	4.1	0.05	AA

$\mu g/100cm^2$ denotes micrograms per 100 cubic centimeters
U denotes not detected above the method detection limit (MDL).
AA denotes Atomic Absorption
ICAP denotes Inductively Coupled Argon Plasma

Table 2 (Cont'd)
Metals Results
Final Report
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

Sample Number	Sample Location	Cadmium		Lead		Method
		Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	Concentration ($\mu g/100cm^2$)	MDL ($\mu g/100cm^2$)	
8596	BLDG. 5a WORK	0.11	0.08	3.8	0.05	AA
8598	BLDG. 10 COMP	16	0.08	260	1.0	ICAP
8600	BLDG. 9a FLOOR	13	0.08	550	1.0	ICAP
8602	BLDG. 5 FLOOR	18	0.08	240	1.0	ICAP
8604	BLDG. 5 AISLE	12	0.08	86	1.0	ICAP
8606	BLDG. 5 WORK	1.8	0.08	40	1.0	ICAP
8608	BLDG. 5 AC	34	0.08	270	1.0	ICAP
8610	BLDG. 5 TABLE	4.4	0.08	28	1.0	ICAP
8612	BLDG. 2 FLOOR	3.6	0.08	260	1.0	ICAP
8614	BLDG. 3 COUNTER	0.09	0.08	0.92	0.05	AA
8616	BLDG. 3 FLOOR	6.5	0.08	320	1	ICAP
8620	FIELD BLANK	U	0.08	0.37	0.05	AA

$\mu g/100cm^2$ denotes micrograms per 100 cubic centimeters
U denotes not detected above the method detection limit (MDL).
AA denotes Atomic Absorption
ICAP denotes Inductively Coupled Argon Plasma

Appendix A

APPENDIX A
Copies of Field Data Sheets and Chain of Custodies
Final Report
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

ENVIRONMENTAL RESPONSE TEAM CENTER
WIPE SAMPLING WORK SHEET

Roy F. Weston Inc.
REAC Project, Edison, NJ
EPA Contract No. 68-C4-0022

Site: Cornell Dubilier Site
WA#: 1-262
Prepared By: Robbins/Solinski
EPA/ERT WAM: Burchette
Date: 3/21/97
REAC Task Leader: Robbins

Sample #	Sample Location Description
8561 PCBs	Bldg 6 SHELF IN BAY AREA NEXT TO APRILAIRE
	907 WHOLE HOUSE HUMIDIFIER
8562 Metals	RUPCOE
8563 PCBs	Bldg 6 OFFICE - ON TABLE NEXT TO COPIER
	912
8564 Metals	RUPCOE
8565 PCBs	Bldg 13 FRONT ENTRY LEFT OF BAY DOOR OPENING.
	1054 FLOOR LOW CONTACT
8566 Metals	TRANSPORT LOGISTICS
8567 PCBs	Bldg 13 WORK STATION TABLE IN MARKETE
	1058
8568 Metals	TRANSPORT LOGISTICS
8569 PCBs	Bldg 13 BREAKROOM COUNTER NEAR MICROWAVE
	1102
8570 Metals	TRANSPORT LOGISTICS
8571 PCBs	Bldg 18 TOP OF TOASTER OVEN IN FRONT ENTRY AREA
	935
8572 Metals	NORPAK
8573 PCBs	Bldg 18 WORK BENCH IN SECOND ROOM IN
	945
8574 Metals	NORPAK
8575 PCBs	Bldg 18 FLOOR IN FRONT ENTRY ~~NEXT TO~~ LEFT WALL
	842 NEXT TO HOLE IN WALL
8576 Metals	NORPAK
8577 PCBs	Bldg 14 LOW CONTACT UNDER FRONT OFFICE DESK
	815 JRS ENGINEERING
8578 Metals	
8579 PCBs	Bldg 14 FLOOR APPRX 30' INSIDE BAY DOORS
	825 BY DIP TANK
8580 Metals	JRS ENGINEERING
8581 PCBs	Bldg 14 HIGH CONTACT AREA DRAFTING DESK
	830 IN LARGE OPEN WORK AREA ON TOP
8582 Metals	JRS ENGINEERING
~~8583~~ PCBs	Bldg 9C NOT COLLECTED NO ONE ~~PRESENT~~
~~8584~~ Metals	CJ TRADING

General Comments: For the lead and cadmium wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water. For the Aroclor 1254 wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water.

ENVIRONMENTAL RESPONSE TEAM CENTER
WIPE SAMPLING WORK SHEET

Roy F. Weston Inc.
REAC Project, Edison, NJ
EPA Contract No. 68-C4-0022

Site: Cornell Dubilier Site
WA#: 1-262
Prepared By: Robbins/Solinski
EPA/ERT WAM: Burchette
Date: 3/21/97
REAC Task Leader: Robbins

Sample #	Sample Location Description
8585 PCBs	Bldg 11 NEXT TO GARAGE DOOR ENTRANCE
	1023 LOW CONTACT
8586 Metals	FABRICATION TECHNOLOGIES (FORMER BULLET MANUFACTURER
8587 PCBs	Bldg #12 GARAGE FLOOR NEXT TO GARAGE DOOR ENTRANCE
	1010 ON RIGHT AS YOU ENTER GARAGE DOOR
8588 Metals	R+M LOW CONTACT
8589 PCBs	Bldg 12 FIRST TABLE SAW AREA ON RIGHT
	1014 BEYOND OFFICE TRAILER
8590 Metals	R+M
8591 PCBs	Bldg 5A FRONT ENTRY TO LEFT OF GARAGE DOOR,
	949 FLOOR - LOW CONTACT
8592 Metals	RARITAN
8593 PCBs	Bldg 5A OFFICE TOP OF FRIDGE
	954
8594 Metals	RARITAN
8595 PCBs	Bldg 5A WORK STATION IN BACK, MIDDLE OF
	958 ENTIRE ROOM
8596 Metals	RARITAN
8597 PCBs	Bldg 10 TOP OF COMPRESSOR
	1038 LOW CONTACT
8598 Metals	DSM
8599 PCBs	Bldg 9A LOW CONTACT ON LEFT WALL ~~AS~~ OF ENTRANCE
	859 TO BAY DOOR
8600 Metals	PIONEER
8601 PCBs	Bldg 5 LOW CONTACT FLOOR NEXT TO BLUE FURNACE
	925
8602 Metals	COLUMBIA
8603 PCBs	Bldg 5 CENTER AISLE WORK AREA (TRUCK CARBS
	949
8604 Metals	COLUMBIA
8605 PCBs	Bldg 5 WORK STATION CLOSEST TO FRONT ENTRY IN
	933 CENTER (ALTENATORS)
8606 Metals	COLUMBIA
8607 PCBs	Bldg 5 TOP OF AC WALL UNIT NEXT TO PLASTIC
	938 FLAP ENTRY
8608 Metals	COLUMBIA

General Comments: For the lead and cadmium wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water. For the Aroclor 1254 wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water.

ENVIRONMENTAL RESPONSE TEAM CENTER
WIPE SAMPLING WORK SHEET

Roy F. Weston Inc.
REAC Project, Edison, NJ
EPA Contract No. 68-C4-0022

Site: Cornell Dubilier Site
WA#: 1-262
Prepared By: Robbins/Solinski
EPA/ERT WAM: Burchette
Date: 3/21/97
REAC Task Leader: Robbins

Sample #	Sample Location Description
8609 PCBs	B18g5 PICNIC TABLE IN BREAK ROOM
	940
8610 Metals	COLUMBIA
8611 PCBs	B18g2 NEXT TO FRONT GARAGE DOOR OPENING ON
	1114 FLOOR
8612 Metals	PROMOTION ASSOCIATES
8613 PCBs	B18g3 OFFICE COUNTER
	1120
8614 Metals	ABLE METRO
8615 PCBs	B18g3 GARAGE FLOOR SIDE DOOR NEXT
	1123 NEXT TO ENTRANCE
8616 Metals	ABLE METRO
~~8617~~ PCBs	B18g1 NOT COLLECTED NO ONE PRESENT
~~8618~~ Metals	HOPE INTERNATIONAL
~~8619~~ PCBs	B18g1 NOT COLLECTED NO ONE PRESENT
~~8620~~ Metals	HOPE INTERNATIONAL
8617 PCBs	MS/MSD
8618 Metals	
8619 PCBs	FIELD BLANK
8620 Metals	
PCBs	
Metals	
PCBs	
Metals	
PCBs	
Metals	
PCBs	
Metals	

General Comments: For the lead and cadmium wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water. For the Aroclor 1254 wipe samples a 10cm x 10cm area is wiped with a cotton gauze pad moistened with dionized water.

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell - Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07930

SHEET NO. 1 OF 2

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	(2) Aroclor 1254	area (cm²)		
	08561	Bldg 6 Shelf	X	3/21/97	1	40Z. glass jar	✓	100		
	08563	Bldg 6 Table		3/21/97	1		✓	100		
	08565	Bldg 13 Floor		3/21/97	1		✓	100		
	08567	Bldg 13 Table		3/21/97	1		✓	100		
	08569	Bldg 13 counter		3/21/97	1		✓	100		
	08571	Bldg 18 oven		3/21/97	1		✓	100		
	08573	Bldg 18 Bench		3/21/97	1		✓	100		
	08575	Bldg 18 Floor		3/21/97	1		✓	100		
	08577	Bldg 14 Low Contact		3/21/97	1		✓	100		
	08579	Bldg 14 Floor		3/21/97	1		✓	100		
	08581	Bldg 14 Desk		3/21/97	1		✓	100		
	08585	Bldg 11 Floor		3/21/97	1		✓	100		
	08587	Bldg 12 Floor		3/21/97	1		✓	100		
	08589	Bldg 12 Table		3/21/97	1		✓	100		
	08591	Bldg 5a Floor		3/21/97	1		✓	100		
	08593	Bldg 5a office		3/21/97	1		✓	100		
	08595	Bldg 5a work		3/21/97	1		✓	100		
	08597	Bldg 5a Comp.		3/21/97	1		✓	100		
	08599	Bldg 9a Floor		3/21/97	1		✓	100		
	06601	Bldg 5 Floor	X	3/21/97	1		✓	100		

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other wipe	SL -	Sludge	A -	Air

Special Instructions:

(2) Aroclor 1254 wipe

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All Analysis	[illegible]	3/21/97	B Lewis	3/21/97	1510						

FORM #4 8/94

* U.S. GPO: 1994-383-016

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell - Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07931

SHEET NO 2 OF 2

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	(1) Aroclor 1254	area (cm²)		
	08603	Bldg 5 Aisle	X	3/21/97	1	40z. glass jar	✓	100		
	08605	Bldg 5 work		3/21/97	1		✓	100		
	08607	Bldg 5 AC		3/21/97	1		✓	100		
	08609	Bldg 5 Table		3/21/97	1		✓	100		
	08611	Bldg 2 Floor		3/21/97	1		✓	100		
	08613	Bldg 3 Counter		3/21/97	1		✓	100		
	08615	Bldg 3 Floor		3/21/97	1		✓	100		
	08617	MS/MSD (3)		3/21/97	1		✓	—		
	08619	Field Blank	↓	3/21/97	1	↓	✓	—		

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other- wipe	SL -	Sludge	A -	Air

Special Instructions:

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

(1) Aroclor 1254 wipe
(3) MS/MSD - Matrix Spike / Matrix Spike Duplicate

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
NJ Analysis	Ken Robbins	3/21/97	B Lewis	3/21/97	1510						

FORM #4 8/94

★ U.S. GPO: 1994-383-015

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: E Cornell - Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07924

SHEET NO. 2 OF 2

Sample Identification / Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd (2)	area (cm^2)
	08604	Bldg 5 Aisle	X	3/21/97	1	4 oz glass jar	✓	100
	08606	Bldg 5 work	X	3/21/97	1		✓	100
	08608	Bldg 5 AC	X	3/21/97	1		✓	100
	08610	Bldg 5 table	X	3/21/97	1		✓	100
	08612	Bldg 2 floor	X	3/21/97	1		✓	100
	08614	Bldg 3 counter	X	3/21/97	1		✓	100
	08616	Bldg 3 floor	X	3/21/97	1		✓	100
	08618	MS/MSD (3)	X	3/21/97	1		✓	—
	08620	Field Blank	X	3/21/97	1		✓	—

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other wipe	SL -	Sludge	A -	Air

Special Instructions:

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

(2) Metals Analysis for Lead + Cadmium wipe Samples
(3) MS/MSD - Matrix Spike / Matrix Spike Duplicate

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All Analysis	Ken Rob	3/24/97	B Lowe	3/21/97	1510						

FORM #4 8/94

* U.S. GPO: 1994-383-016

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell-Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07925

SHEET NO. 1 OF 2

Sample Identification / Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb Cd (1)	area (cm²)		
	08562	Bldg 6 Shelf	X	3/21/97	1	4oz glass jar	✓	KR ✓ 100		
	08564	Bldg 6 Table	X	3/21/97	1		✓	KR ✓ 100		
	08566	Bldg 13 Floor	X	3/21/97	1		✓	KR ✓ 100		
	08568	Bldg 13 Table	X	3/21/97	1		✓	KR ✓ 100		
	08570	Bldg 13 Counter	X	3/21/97	1		✓	100		
	08572	Bldg 18 oven	X	3/21/97	1		✓	100		
	08574	Bldg 18 Bench	X	3/21/97	1		✓	100		
	08576	Bldg 18 Floor	X	3/21/97	1		✓	100		
	08578	Bldg 14 Low Contact	X	3/21/97	1		✓	100		
	08580	Bldg 14 Floor	X	3/21/97	1		✓	100		
	08582	Bldg 14 Desk	X	3/21/97	1		✓	100		
	08586	Bldg 11 Floor	X	3/21/97	1		✓	100		
KR	~~08~~ 08588	Bldg 12 Floor	X	3/21/97	1		✓	100		
	08590	Bldg 12 Saw	X	3/21/97	1		✓	100		
	08592	Bldg 5a Floor	X	3/21/97	1		✓	100		
	08594	Bldg 5a Office	X	3/21/97	1		✓	100		
	08596	Bldg 5a Work	X	3/21/97	1		✓	100		
	08598	Bldg 10 Comp.	X	3/21/97	1		✓	100		
	08600	Bldg 9a floor	X	3/21/97	1		✓	100		
	08602	Bldg 5 Floor	X	3/21/97	1		✓	100		

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	~~Drum Liquids~~	SW -	Surface Water	O -	Oil
X -	Other - wipe	SL -	Sludge	A -	Air

Special Instructions:

(1) Metals Analysis For Lead + Cadmium wipe Samples

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All/Analysis	[illegible]	3/21/97	[illegible]	3/21/97	1510						

FORM #4 8/94

* U.S. GPO: 1994-383-015

Appendix B

APPENDIX B
Analytical Report
Final Report
Cornell Dubilier Electronics
South Plainfield, NJ
May 1997

ANALYTICAL REPORT

Prepared by
Roy F. Weston, Inc.

Cornell Dubilier Electronics
S. Plainfield, NJ

May 1997

EPA Work Assignment No. 1-262
WESTON Work Order No. 03347-041-001-1262-01
EPA Contract No. 68-C4-0022

Submitted to
S. Burchette
EPA-ERTC

5/8/97

K. Robbins
Task Leader
Date

Analysis by:
REAC

5/9/97

V. Kansal
Analytical Section Leader
Date

Prepared by:
G. Karustis

5/9/97

E. Gilardi
Project Manager
Date

Reviewed by:
M. Barkley

\1262\DEL\AR\9705\REPORT

Table of Contents

Appendices will be furnished on request.

Introduction

REAC, in response to ERTC WA # 1-262, provided analytical support for environmental samples collected at the Cornell Dubilier Electronics Site in S. Plainfield, NJ as described in the following table. The support also included QA/QC, data review and the preparation of a report summarizing the analytical methods, results, and the QA/QC results.

The samples were treated with procedures consistent with those described in SOP #1008 and are summarized in the following table:

COC #**	Number of Samples	Sampling Date	Date Received	Matrix	Analysis	Laboratory
07924	9	3/21/97	3/21/97	Wipe	Pb, Cd	REAC
07925	20	3/21/97	3/21/97	Wipe	Pb, Cd	REAC
07930	20	3/21/97	3/21/97	Wipe	Aroclor 1254	REAC
07931	9	3/21/97	3/21/97	Wipe	Aroclor 1254	REAC

** COC # denotes Chain of Custody number

Case Narrative

PCB Package G 161

Although the chains of custody specify analysis for Aroclor 1254, all seven Aroclors are reported with the consent of the client.

The chromatograms for samples 08573, 08575, 08585, 08587, 08597, 08601, 08603, 08605, 08607, 08609 and 08615 show evidence for the presence of weathered Aroclor 1260. Sample 08599 shows evidence for weathered Aroclor 1254. Because of the impact of weathering on the data, the results of all weathered Aroclors should be regarded as estimated.

Lead and Cadmium Package G 149

The samples were first analyzed by ICAP for cadmium and lead; when the results for lead were either very low or below the MDL, the samples were re-analyzed by AA (furnace) to obtain a lower MDL.

Lead (by AA furnace) was detected in media blank #1 (0.12 $\mu g/100cm^2$) and media blank #2 (0.14 $\mu g/100cm^2$). The lead concentration in associated samples 08590 and 08620, when analyzed by AA furnace, should be regarded as estimated since the concentrations are less than 5 times that of the blank.

The field blank, 8620, contained 0.37 $\mu g/100cm^2$ lead when analyzed by furnace. No qualifiers were applied to the data, but the data should be regarded as estimated because of the facts stated in the previous paragraph.

Summary of Abbreviations

AA	Atomic Absorption
B	The analyte was found in the blank
BFB	Bromofluorobenzene
BPQL	Below the Practical Quantitation Limit
C	Centigrade
D	(Surrogate Table) this value is from a diluted sample and was not calculated (Result Table) this result was obtained from a diluted sample
Dioxin	denotes Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans and/or PCDD and PCDF
CLP	Contract Laboratory Protocol
COC	Chain of Custody
CONC	Concentration
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
DFTPP	Decafluorotriphenylphosphine
DL	Detection Limit
E	The value is greater than the highest linear standard and is estimated
EMPC	Estimated maximum possible concentration
ICAP	Inductively Coupled Argon Plasma
ISTD	Internal Standard
J	The value is below the method detection limit and is estimated
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MI	Matrix Interference
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MW	Molecular Weight
NA	either Not Applicable or Not Available
NC	Not Calculated
NR	Not Requested
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
PQL	Practical Quantitation Limit
PPBV	Parts per billion by volume
QL	Quantitation Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Mode
TCLP	Toxic Characteristics Leaching Procedure
U	Denotes not detected
m^3	cubic meter
L	liter
mL	milliliter
μL	microliter
kg	kilogram
g	gram
mg	milligram
μg	microgram
pg	picogram
*	denotes a value that exceeds the acceptable QC limit
	Abbreviations that are specific to a particular table are explained in footnotes on that table

Revision 3/7/97

\1262\DEL\AR\9705\REPORT

Analytical Procedure for PCBs in Wipes

Extraction Procedure

The entire wipe was spiked with a surrogate solution consisting of tetrachloro-m-xylene and decachlorobiphenyl, and was sonicated with hexane. The combined extracts were concentrated to 3.0 mL.

Gas Chromatographic Analysis

The extract was analyzed for PCBs using simultaneous dual column injections. The analysis was done on an HP 5890 GC/ECD system, equipped with an HP 7673A automatic sampler, and controlled with an HP-ChemStation. The following conditions were employed:

First Column	DB-608, 30 meter, 0.53mm fused silica capillary, 0.83 μm film thickness
Injector Temperature	250° C
Detector Temperature	325° C
Temperature Program	150°C for 1 minute 7°C/min to 265°C 18 min at 265°
Second Column	Rtx-1701, 30 meter, 0.53mm fused silica capillary, 0.50 μm film thickness
Injector Temperature	250° C
Detector Temperature	325° C
Temperature Program	150° C for 1 minute 7°C/min to 265°C 18 min at 265°

The gas chromatographs were calibrated using 5 Aroclor 1254 standards at 250, 500, 1000, 2000, and 5000 μg/L. The response from each mixture were used to calculate the response factors (RF) of each analyte. The average RF was used to calculate the concentrations of PCB in the samples. Quantification was based on the DB-608 column (signal 1), and identity of the analyte was confirmed using the Rtx-1701 column (signal 2). A fingerprint gas chromatogram was run using each of the seven Aroclor mixtures.

The PCB results, listed in Table 1.1, were calculated from the following formula:

$$C_u = \frac{DF x A_u x V_t}{RF_{ave} x V_i}$$

where

C_u = Concentration of analyte ($\mu g/100\ cm^2$)
DF = Dilution Factor
A_u = Area or peak height
V_t = Volume of sample (mL)
RF_{ave} = Average response factor
V_i = Volume of extract injected (μL)

Response Factor calculation:

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_u}{total\ pg\ injected}$$

where

A_u = Area or peak height

and

$$RF_{ave} = \frac{RF_1 + ... + RF_n}{n}$$

where

n = number of samples

Revision 7/11/94

Analytical Procedure for Lead and Cadmium in Wipes

Sample Preparation

Each wipe sample was transferred to a clean 100 mL beaker and prepared according to reference method NIOSH 7105. The samples were thoroughly mixed with 5 mL concentrated nitric acid and heated on a hot plate until the volume was reduced to 0.5 mL. Additional nitric acid and hydrogen peroxided were added during heating to complete digestion of the wipe pad. After digestion , the samples were allowed to cool to room temperature, transferred to 25 mL volumetric flasks and diluted to 25 mL with ASTM Type II water. The samples were analyzed for all lead and cadmium, by USEPA SW-846, Method 7000 (Atomic absorption) or Method 6010 (Inductively Coupled Argon Plasma-ICAP) procedures.

A reagent blank, reagent blank spike, media blank and media blank spike were carried through the sample preparation procedure for each analytical batch of samples processed. One matrix spike (MS) and one matrix spike duplicate (MSD) sample (prepared using blank wipes) were also processed for each analytical batch or every 10 samples.

Analysis and Calculations

The instruments were calibrated and operated according to SW-846, Method 7000/6010 and the manufacturers operating instructions. After calibration, initial calibration verification (ICV), initial calibration blank (ICB) and quality control check standards were run to verify proper calibration. The continuing calibration verification (CCV) and continuing calibration blank (CCB) were run after every ten samples to assure proper operation during sample analysis.

The metal concentrations in solution, in micrograms per liter (μg/L) were taken from the read-out systems of the AA and ICAP instuments. The results (in micrograms per wipe, μg/wipe) were obtained by externally correcting read-outs for final digestion volume.

Final concentrations, (μg/wipe) were given by:

$$\mu g \text{ metal/wipe sample} = Ax(V/1000)xDF$$

where:

A = Insrument read-out (μg/L)
V = final volume of processed sample (mL)
DF = Dilution Factor (1.00 for no dilution)

For samples that required dilution to be within the instrument calibration range, DF is given by:

$$DF = (C+B)/C$$

where:

B = acid blank matrix used for dilution (mL)
C = sample blank aliquot (mL)

The results of the analysis are listed in Table 1.2.

Table 1.1 Results of the Analysis for PCBs in Wipes
WA # 1-262 Cornell Dubilier Electronics

Sample ID	BLK03249701		08561		08563		08565		08567	
Location	-		Bldg 6 Shelf		Bldg 6 Table		Bldg 13 Floor		Bldg 13 Table	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	U	0.8	5.0	0.8	0.4 J	0.8	7.3	0.8	1.5	0.8
AROCLOR 1260	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8

Sample ID	08569		08571		08573		08575		08577	
Location	Bldg 13 Counter		Bldg 18 Oven		Bldg 18 Bench		Bldg 18 Floor		Bldg 14 Low Cont	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	U	0.8	3.2	0.8	89	0.8	7.5	0.8	6.4	0.8
AROCLOR 1260	U	0.8	U	0.8	82 W	0.8	4.9 W	0.8	U	0.8

"W" denotes weathered

Sample ID	08579		08581		08585		08587		08589	
Location	Blg 14 Floor		Bldg 14 Desk		Bldg 11 Floor		Bldg 12 Floor		Bldg 12 Table	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	1.9	0.8	U	0.8	9.2	0.8	13	0.8	U	0.8
AROCLOR 1260	U	0.8	U	0.8	3.9 W	0.8	12 W	0.8	U	0.8

"W" denotes weathered

Table 1.1(Cont) Results of the Analysis for PCBs in Wipes
WA # 1-262 Cornell Dubilier Electronics

Sample ID	08591		08593		08595		08597		08599	
Location	Blg 5a Floor		Bldg 5a Office		Bldg 5a Work		Bldg 10 Comp		Bldg 9a Floor	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	70	0.8	2.0	0.8	U	0.8	2.0	0.8	16 W	0.8
AROCLOR 1260	17	0.8	U	0.8	U	0.8	0.9 W	0.8	U	0.8

"W" denotes weathered

Sample ID	08601		08603		08605		08607		08609	
Location	Bldg 5 Floor		Bldg 5 Aisle		Bldg 5 Work		Bldg 5 AC		Bldg 5 Table	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	210	0.8	62	0.8	9.9	0.8	500	0.8	350	0.8
AROCLOR 1260	24 W	0.8	5.9 W	0.8	1.1 W	0.8	180 W	0.8	21 W	0.8

"W" denotes weathered

Sample ID	08611		08613		08615		08619	
Location	Bldg 2 Floor		Bldg 3 counter		Bldg 3 Floor		Field Blank	
	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
AROCLOR 1016	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1221	U	1.5	U	1.5	U	1.5	U	1.5
AROCLOR 1232	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1242	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1248	U	0.8	U	0.8	U	0.8	U	0.8
AROCLOR 1254	4.6	0.8	U	0.8	8.6	0.8	U	0.8
AROCLOR 1260	U	0.8	U	0.8	4.7 W	0.8	U	0.8

"W" denotes weathered

Table 1.2 Results of the Analysis for Lead and Cadmium in Wipes
WA # 1-262 Cornell-Dubilier Electronics

Parameter Analysis Method		Cadmium ICAP		Lead ICAP		Lead AA-furnace	
Client ID	Location	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²	Conc µg/100cm²	MDL µg/100cm²
Media Blank #1	Lab	U	0.08	U	1.0	0.12	0.05
Media Blank #2	Lab	U	0.08	U	1.0	0.14	0.05
08562	Bldg 6, shelf	0.83	0.08	14	1.0	NA	NA
08564	Bldg 6, table	U	0.08	U	1.0	0.91	0.05
08566	Bldg 13, floor	23	0.38	780	5.0	NA	NA
08568	Bldg 13, table	3.3	0.08	160	1.0	NA	NA
08570	Bldg 13, counter	0.10	0.08	U	1.0	1.4	0.05
08572	Bldg 18, oven	0.41	0.08	25	5.0	NA	NA
08574	Bldg 18, bench	6.3	0.08	450	1.0	NA	NA
08576	Bldg 18, floor	5.9	0.38	320	5.0	NA	NA
08578	Bldg 14, low contact	7.9	0.38	320	5.0	NA	NA
08580	Bldg 14, floor	2.6	0.38	100	5.0	NA	NA
08582	Bldg 14, desk	0.32	0.08	7.0	1.0	NA	NA
08586	Bldg 11, floor	1.1	0.08	25	1.0	NA	NA
08588	Bldg 12, floor	6.1	0.08	250	1.0	NA	NA
08590	Bldg 12, saw	0.14	0.08	U	1.0	0.67	0.05
08592	Bldg 5a, floor	4.2	0.08	75	1.0	NA	NA
08594	Bldg 5a, office	0.16	0.08	NA	NA	4.1	0.05
08596	Bldg 5a, work	0.11	0.08	NA	NA	3.8	0.05
08598	Bldg 10, comp.	16	0.08	260	1.0	NA	NA
08600	Bldg 9a, floor	13	0.08	550	1.0	NA	NA
08602	Bldg 5, floor	18	0.08	240	1.0	NA	NA
08604	Bldg 5, aisle	12	0.08	86	1.0	NA	NA
08606	Bldg 5, work	1.8	0.08	40	1.0	NA	NA
08608	Bldg 5, AC	34	0.08	270	1.0	NA	NA
08610	Bldg 5, table	4.4	0.08	28	1.0	NA	NA
08612	Bldg 2, floor	3.6	0.08	260	1.0	NA	NA
08614	Bldg 3, counter	0.09	0.08	U	1.0	0.92	0.05
08616	Bldg 3, floor	6.5	0.08	320	1.0	NA	NA
08620	Field Blank	U	0.08	U	1.0	0.37	0.05

Each sample was spiked with a solution of tetrachloro-m-xylene and decachlorobiphenyl as surrogates. Percent recoveries ranged from 35 to 134 and are listed in Table 2.1. Fifty-five out of sixty-five values were within the advisory QC limits. One other value was not calculated because of matrix interference.

The blank and sample 08617 were chosen for the matrix spike/matrix spike duplicate (MS/MSD) analyses. The percent recoveries ranged from 73 to 87 and are listed in Table 2.2. The relative percent differences (RPDs), also listed in Table 2.2, were 4 and 17. QC limits are not available for this analysis.

Table 2.1 Results of the Surrogate Recoveries for PCBs in Wipes
WA # 1-262 Cornell Dubilier Electronics

Sample ID	Percent Recovery TCMX	DCBP
PBLK03249701	126	94
Blank MS	118	81
Blank MSD	106	63
08561	110	99
08563	119	95
08565	35 *	58 *
08567	84	110
08569	114	74
08571	91	103
08573	72	82
08575	66	47 *
08577	89	55 *
08579	80	61
08581	101	51 *
08585	80	49 *
08587	68	40 *
08589	100	63
08591	110	49 *
08593	134	77
08595	115	88
08597	116	85
08599	79	MI
08601	65	116
08603	84	57 *
08605	108	69
08607	96	107
08609	97	55 *
08611	101	80
08613	107	69
08615	103	108
08617MS	127	75
08617MSD	125	74
08619	130	79

TCMX denotes Tetrachloro-m-xylene
DCBP denotes Decachlorobiphenyl

	Advisory QC Limits
TCMX	60-150
DCBP	60-150

Table 2.2 Results of the MS/MSD Analysis for PCBs in Wipes
WA # 1-262 Cornell Dubilier Electronics

Sample ID	Sample Conc µg/100cm²	Spike Added µg/100cm²	MS Conc µg/100cm²	MS % Rec	MSD Conc µg/100cm²	MSD % Rec	RPD
Blank	U	3.0	2.6	87	2.2	73	17
08617	U	3.0	2.6	87	2.5	83	4

QC standards QC-21x100, ERA-431, TMMA #1 and TMMA #2 were used to check the accuracy of the calibration curve. The percent recoveries ranged from 99 to 102 and all recovered concentrations were within the 95% confidence limits. The recoveries are listed in Table 2.3. The 95% confidence limits for 2 values are not available.

Sample 08618 was chosen for the matrix spike/matrix spike duplicate (MS/MSD) analyses. The percent recoveries, listed in Table 2.4, ranged from 77 to 216. The relative percent differences (RPDs), also listed in Table 2.4, were 4 and 83. QC limits are not available for this analysis.

The percent recoveries of the media spike, listed in Table 2.5, were 73 and 78. QC limits are not available for this analysis.

The percent recoveries of the reagent spike, listed in Table 2.6, ranged from 80 to 100. QC limits are not available for this analysis.

Table 2.3 Results of the QC Standard Analysis for Lead and Cadmium (Wipes)
WA # 1-262 Cornell-Dubilier Electronics

Metal	Date Analyzed	Quality Control Standard	Conc. Recovered µg/L	Certified Value µg/L	95 % Confidence Interval	% Rec
Cadmium	04/03/97	QC-21 x100	1012	1000	NA	101
	04/03/97	ERA-431	83	82	67 - 97	101
Lead	04/03/97	QC-21 x100	1021	1000	NA	102
	04/03/97	ERA-431	353	353	289 - 417	100
	04/07/97	TMAA#1	50.5	50	43.4 - 56.29	101
	04/08/97	TMAA#1	49.6	50	43.4 - 56.29	99

Table 2.4 Results of the MS/MSD Analysis for Lead and Cadmium in Wipes
WA # 1-262 Cornell-Dubilier Electronics

Metal	Sample ID	Original Conc. Spike µg/wipe	Original Conc. Dup. µg/wipe	Recovered Conc. Spike µg/wipe	Recovered Conc. Dup. µg/wipe	% Recovery Spike	% Recovery Dup	RPD
Cadmium	08618	2.50	2.50	1.93	2.01	77	80	4
Lead	08618	2.50	2.50	2.24	5.39	90	216	83

Table 2.5 Results of the Media Spike Analysis for Lead and Cadmium in Wipes WA # 1-262 Cornell-Dubilier Electronics

Metal	Client #	Original Conc Spike µg/wipe	Rec Conc Spike µg/wipe	% Rec Spike
Cadmium	NA	2.50	1.95	78
Lead	NA	2.50	1.82	73

Table 2.6 Results of the Reagent Spike Analysis for Lead and Cadmium in Wipes WA # 1-262 Cornell-Dubilier Electronics

Metal	Spiked Conc µg/L	Rec Conc. µg/L	% Rec
Cadmium	100	80	80
Lead - ICAP	100	83	83
Lead - AA	100	96	96
Lead - AA	100	100	100

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell - Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07924

SHEET NO. 2 OF 2

032197

Sample Identification / Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd (2)	area (cm²)		
103	08604	Bldg 5 Aisle	X	3/21/97	1	4oz glass Jar	✓	100		
104	08606	Bldg 5 work	X	3/21/97	1	↓	✓	100		
105	08608	Bldg 5 AC	X	3/21/97	1		✓	100		
106	08610	Bldg 5 Table	X	3/21/97	1		✓	100		
107	08612	Bldg 2 floor	X	3/21/97	1		✓	100		
108	08614	Bldg 3 counter	X	3/21/97	1		✓	100		
109	08616	Bldg 3 floor	X	3/21/97	1		✓	100		
110	08618	MS/MSD (3)	X	3/21/97	1		✓	—		
111	08620	Field Blank	X	3/21/97	1		✓	—		

Matrix:
SD - Sediment PW - Potable Water S - Soil
DS - Drum Solids GW - Groundwater W - Water
DL - ~~Drum Liquids~~ SW - Surface Water O - Oil
X - Other - wipe SL - Sludge A - Air

Special Instructions:

(2) Metals Analysis for Lead + Cadmium wipe Samples
(3) MS/MSD - Matrix Spike / Matrix Spike Duplicate

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All/Analysis	Ken Robbins	3/21/97	B Lewa	3/21/97	1510	All/Analysis	B Lewa	3/21/97	Yangtze Exume	3/21/97	3:40pm

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★ U.S. GPO: 1994-383-015

000117

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell-Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07925

SHEET NO. 1 OF 2

032197

Sample Identification / **Analyses Requested**

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd (1)	area (cm²)		
083	08562	Bldg 6 Shelf	X	3/21/97	1	4oz glass jar	✓	100		
084	08564	Bldg 6 table	X	3/21/97	1		✓	KR 100		
085	08566	Bldg 13 floor	X	3/21/97	1		✓	KR 100		
086	08568	Bldg 13 Table	X	3/21/97	1		✓	100		
087	08570	Bldg 13 Counter	X	3/21/97	1		✓	100		
088	08572	Bldg 18 oven	X	3/21/97	1		✓	100		
089	08574	Bldg 18 Bench	X	3/21/97	1		✓	100		
090	08576	Bldg 18 Floor	X	3/21/97	1		✓	100		
091	08578	Bldg 14 Low Contact	X	3/21/97	1		✓	100		
092	08580	Bldg 14 Floor	X	3/21/97	1		✓	100		
093	08582	Bldg 14 Desk	X	3/21/97	1		✓	100		
094	08586	Bldg 11 Floor	X	3/21/97	1		✓	100		
095 KR	~~08~~08588	Bldg 12 Floor	X	3/21/97	1		✓	100		
096	08590	Bldg 12 Saw	X	3/21/97	1		✓	100		
097	08592	Bldg 5a Floor	X	3/21/97	1		✓	100		
098	08594	Bldg 5a Office	X	3/21/97	1		✓	100		
099	08596	Bldg 5a Work	X	3/21/97	1		✓	100		
100	08598	Bldg 10 Comp.	X	3/21/97	1		✓	100		
101	08600	Bldg 9a floor	X	3/21/97	1		✓	100		
102	08602	Bldg 5 floor	X	3/21/97	1		✓	100		

00018

Matrix:
SD - Sediment
DS - Drum Solids
~~DL - Drum Liquids~~
X - Other - wipe
PW - Potable Water
GW - Groundwater
SW - Surface Water
SL - Sludge
S - Soil
W - Water
O - Oil
A - Air

Special Instructions:

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

(1) Metals Analysis for Lead + Cadmium wipe Samples

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All/Analysis	Ken Robbins	3/21/97	B Lara	3/21/97	1510	All/Analysis	B Lara	3/21/97	Yangthe Exume	3/21/97	3:40pm

FORM #4

8/94

U.S. G.P.O. [illegible]

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell - Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07930

SHEET NO. 1 OF 2

032197

Sample Identification

(2) Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Aroclor 1254	area (cm²)		
054	08561	Bldg 6 Shelf	X	3/21/97	1	40z. glass jar	✓	100		
055	08563	Bldg 6 Table		3/21/97	1		✓	100		
056	08565	Bldg 13 Floor		3/21/97	1		✓	100		
057	08567	Bldg 13 Table		3/21/97	1		✓	100		
058	08569	Bldg 13 counter		3/21/97	1		✓	100		
059	08571	Bldg 18 oven		3/21/97	1		✓	100		
060	08573	Bldg 18 Bench		3/21/97	1		✓	100		
061	08575	Bldg 18 Floor		3/21/97	1		✓	100		
062	08577	Bldg 14 Low Contact		3/21/97	1		✓	100		
063	08579	Bldg 14 Floor		3/21/97	1		✓	100		
064	08581	Bldg 14 Desk		3/21/97	1		✓	100		
065	08585	Bldg 11 Floor		3/21/97	1		✓	100		
066	08587	Bldg 12 Floor		3/21/97	1		✓	100		
067	08589	Bldg 12 Table		3/21/97	1		✓	100		
068	08591	Bldg 5a Floor		3/21/97	1		✓	100		
069	08593	Bldg 5a office		3/21/97	1		✓	100		
070	08595	Bldg 5a work		3/21/97	1		✓	100		
071	08597	Bldg 10 Comp.		3/21/97	1		✓	100		
072	08599	Bldg 9a Floor		3/21/97	1		✓	100		
073	08601	Bldg 5 Floor		3/21/97	1		✓	100		

00019

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	~~Drum Liquids~~	SW -	Surface Water	O -	Oil
X -	Other - wipe	SL -	Sludge	A -	Air

Special Instructions:

(2) Aroclor 1254 wipe

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All Analysis	[illegible]	3/21/97	B Lewa	3/21/97	1510	All Analysis	B Lewa	3/21/97	M-Young	3/21/97	4

FORM #4 8/94

★ U.S. GPO: 1994-383-015

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Cornell-Dubilier
Project Number: 1-262
RFW Contact: Ken Robbins Phone: 4298

No: 07931

SHEET NO 2 OF 2

032197

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Aroclor 1254 (1)	area (cm²)
074	08603	Bldg 5 Aisle	X	3/21/97	1	40z. glass jar	✓	100
075	08605	Bldg 5 work	"	3/21/97	1	"	✓	100
076	08607	Bldg 5 AC	"	3/21/97	1	"	✓	100
077	08609	Bldg 5 Table	"	3/21/97	1	"	✓	100
078	08611	Bldg 2 floor	"	3/21/97	1	"	✓	100
079	08613	Bldg 3 Counter	"	3/21/97	1	"	✓	100
080	08615	Bldg 3 Floor	"	3/21/97	1	"	✓	100
081	08617	MS/MSD (3)	"	3/21/97	1	"	✓	—
082	08619	Field Blank	↓	3/24/97	1	↓	✓	—

UW020

Special Instructions:

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	~~Drum Liquids~~	SW -	Surface Water	O -	Oil
X -	Other - wipe	SL -	Sludge	A -	Air

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

(1) Aroclor 1254 wipe
(3) MS/MSD - Matrix Spike / Matrix Spike Duplicate

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
All Analysis	Ken Robbins	3/24/97	B Lewan	3/21/97	1510	All Analysis	B Lewan	3/21/97	M-FEDEX	3/21/97	405

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